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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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William Morrison

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EXAMINER

ROST, ANDREW J

ART UNIT

PAPER NUMBER

3751

DATE MAILED: 08/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/802,439	MORRISON, WILLIAM	
	Examiner	Art Unit	
	Andrew J. Rost	3751	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 8-32 is/are rejected.
- 7) ☒ Claim(s) 4-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendments filed on 7/21/2006. No claims were cancelled. No claims were newly added. Claims 1, 32, 32, and 34 were amended. Presently, claims 1-34 are pending.

Response to Amendment

2. Applicant's request for reconsideration of the finality of the 103 rejections to claims 31 and 32 of the Office Action mailed on 5/23/2006 is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Persons (2,052,987).

Regarding claim 1, Persons discloses an actuator with a gear assembly (26), a motor (36) with the housing being defined by frame (18), a biasing mechanism (spring 39) that returns the valve stem to a closed position in a rapid manner, and a brake mechanism (friction brake in drum 41) mounted on the drive shaft of the motor and will retard the speed of the device (Column 2-3, lines 50-7). While it is true that Persons does not particularly mention that the biasing mechanism is structured to close the valve stem within a time period that causes water hammer in a fluid system, however, Persons's system has a valve connected to a valve stem, when valve stem (40) closes against the valve seat (6), the fluid in the fluid system will create a water hammer effect while the valve is closing due to the barrier in the flow path. Therefore, Persons's biasing mechanism has the same structure as claimed by the applicant.

In regards to claim 2, Persons discloses the biasing mechanism is a spring (39).

In regards to claim 3, Persons discloses brake means that uses the interaction between friction blocks (44) and drum (41) (Column 2-3, lines 50-7).

In regards to claim 8, Persons discloses a brake that interacts with a sidewall of the drum after a certain speed is reached.

5. Claims 1-3 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Min (US 2005/0092950).

Regarding to claim 1, Min discloses a motor brake structure used for opening and closing a valve structure with the actuator assembly having a motor (10), a biasing mechanism (resilient spring 36) for driving the valve stem in a direction opposite to the

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motor driving direction and a brake (50) that increases the time required for the closing of the valve by the biasing mechanism. While it is true that Min does not particularly mention that the biasing mechanism is structured to close the valve stem within a time period that causes water hammer in a fluid system, however, Min's system has a valve connected to a valve stem, when valve stem (32) closes a valve, the fluid in the fluid system will create a water hammer effect while the valve is closing due to the barrier in the flow path. Therefore, Min's biasing mechanism has the same structure as claimed by the applicant.

In regards to claim 2, Min discloses a biasing mechanism of a resilient spring (36).

In regards to claims 3 and 8, Min discloses the brake uses friction and contacts a sidewall of the motor housing when a predetermined rotational velocity is reached (paragraph 0060).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9-25, 27-30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Min.

Regarding claim 9, Min discloses a motor brake structure used for opening and closing a valve structure in a pipe (31) with the actuator assembly having a motor (10), a biasing mechanism (resilient spring 36) for driving the valve stem in a direction opposite to the motor driving direction and a brake (50) that increases the time required for the closing of the valve by the biasing mechanism. Min does not disclose limiting the rotational velocity of the output shaft of the motor to less than 1000 rpms. However, Min discloses rotational velocity of the motor shaft is limited by the brake and the brake can be altered to adjust the rotation speed of the motor (paragraph 0063). Therefore, it would have been obvious to a skilled artisan, upon seeing Min's reference, to adjust the rotational velocity of the output shaft to less than 1000 rpms since choosing such a range is an obvious design consideration to limit the rotational velocity of the components of the actuator to promote a longer service life of the actuator components.

In regards to claims 10-13, the modified Min reference discloses that the motor can be run in either a forward or reverse direction with the biasing mechanism working in the opposite direction to the motor driving direction depending on the orientation of the valve in the pipe (paragraph 0064).

In regards to claim 14, the modified Min reference discloses the biasing structure is a resilient spring (36).

In regards to claim 15, the modified Min reference discloses the motor has a motor housing (12).

In regards to claim 16, the modified Min reference discloses the brake is of a flexible material and moves outwardly to engage a portion of the motor housing (paragraph 0050).

In regards to claim 17, the modified Min reference discloses the output shaft of the motor (56) is radially centered and flexible material of the brake is secured to the shaft (Figure 2).

In regards to claims 18-20, the modified Min reference discloses the brake has a structure of a straight piece (512) with curved portions (513) extending from the ends of the straight piece with thickened portions (514) at the end of the curved portions with the thickened portions contacting the housing under a predetermined force (Figures 6, 7).

Regarding claim 21, Min discloses an actuator for a valve that is movable between an open and closed position in a pipe with the actuator having a damping mechanism (brake 50) that limits the return speed and time of the biasing mechanism but does not limit the operation of the motor. Min does not expressly disclose that the brake increases the time period required for the biasing mechanism to close the valve stem to 4 seconds or more. However, Min discloses that the rotational velocity of the motor shaft is limited by the brake and the brake can be altered to adjust the rotation speed of the motor (paragraph 0063) with the altering of the brake increasing the return time. Therefore, it have been obvious to a skilled artisan, upon seeing Min's reference, to adjust the brake to close the valve in 4 seconds or more since choosing such a range is an obvious design consideration to adjust the brake to limit the rotation speed of the

motor and increase the time of closing in order to promote a longer service life of the actuator components.

In regards to claims 22-25, the modified Min reference discloses the actuator for a valve in a pipe controlling the flow of a fluid and can be configured to handle water systems.

Regarding claims 27, and 28, Min discloses a motor brake structure used for opening and closing a valve structure with the actuator assembly having a motor (10), a biasing mechanism (resilient spring 36) for driving the valve stem in a direction opposite to the motor driving direction and a brake (50) that increases the time required for the closing of the valve by the biasing mechanism. Min does not disclose limiting the rotational velocity of the output shaft of the motor to less than 1000 rpms or 800 rpms. However, Min discloses rotational velocity of the motor shaft is limited by the brake and the brake can be altered to adjust the rotation speed of the motor (paragraph 0063). Therefore, it have been obvious to a skilled artisan, upon seeing Min's reference, to adjust the rotational velocity of the output shaft to less than 1000 rpms or 800 rpms since choosing such a range is an obvious design consideration to limit the rotational velocity of the components of the actuator to promote a longer service life of the actuator components.

Regarding claim 29, Min discloses a method of operating a valve by having a motor to operate a valve in pipe with a first force, returning the valve to its original position by using a biasing mechanism (resilient spring 36) and reducing the speed of return by operating a brake that interacts with a wall of the motor housing. Min does not

expressly disclose that the brake increases the time period required for the biasing mechanism to close the valve stem to 4 seconds or more. However, Min discloses that the rotational velocity of the motor shaft is limited by the brake and the brake can be altered to adjust the rotation speed of the motor (paragraph 0063) with the altering of the brake increasing the return time. Therefore, it have been obvious to a skilled artisan, upon seeing Min's reference, to adjust the brake to close the valve in 4 seconds or more since choosing such a range is an obvious design consideration to adjust the brake to limit the rotation speed of the motor and increase the time of closing in order to promote a longer service life of the actuator components.

In regards to claim 30, the modified Min reference discloses the operation of the valve to fully open and fully closed positions (paragraph 0064).

In regards to claim 33, Min discloses an actuator with a motor, biasing mechanism and a brake. Min does not expressly disclose that the brake increases the time period required for the biasing mechanism to close the valve stem to 4 seconds or more. However, Min does disclose the rotational velocity of the motor shaft is limited by the brake and the brake can be altered to adjust the rotation speed of the motor (paragraph 0063) with the altering of the brake increasing the return time. Therefore, it have been obvious to a skilled artisan, upon seeing Min's reference, to adjust the brake to close the valve in 4 seconds or more since choosing such a range is an obvious design consideration to adjust the brake to limit the rotation speed of the motor and increase the time of closing in order to promote a longer service life of the actuator components.

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Min as applied to claim 21 above, and further in view of Pasch et al.

Min discloses an actuator for a valve that is movable between an open and closed position in a pipe with the actuator having a damping mechanism (brake 50) that limits the return speed and time of the biasing mechanism but does not limit the operation of the motor. Min does not disclose the use of a thermostat to send control signals to the actuator. However, Pasch et al. disclose that motors in heating and cooling systems respond to a control arrangement which sends a signal corresponding to a thermostat (col. 1, lines 49-52). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to control the actuator of Min with a thermostat as taught by Pasch et al. in order to control a fluid flow in a temperature regulated system.

9. Claims 31 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schreiner, Jr. et al. (6,073,907) in view of Min.

Schreiner, Jr. et al. disclose a valve actuator system having a motor (202) and a valve system (30), Schreiner, Jr. et al. further disclose a method for replacing the valve actuator system by removing either the entire actuator or removing a casing to obtain access to the motor. Schreiner, Jr. et al. differs from the instant claims in that Schreiner, Jr. et al.'s motor does not include a brake. However, Min teaches a motor for a valve actuator having a brake disposed in the motor housing that contacts the motor

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housing when the valve is closing in order to prevent the valve components from being damaged (paragraph 0014). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the motor with brake as taught by Min in the removable and interchangeable valve actuator system of Schreiner, Jr. et al. in order to prevent the valve components from being damaged.

Allowable Subject Matter

10. Claims 4-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

11. Applicant's arguments, see page 10, lines 2-10, filed 7/21/2006, with respect to Hajny et al. have been fully considered and are persuasive. The 35 U.S.C 102(b) rejections of Hajny et al. of claims 1-3 and 8 of 5/23/2006 have been withdrawn.

12. Applicant's arguments, see page 14, fourth full paragraph, lines 1-5, filed 7/21/2006, with respect to Weiss et al. have been fully considered and are persuasive. The 35 U.S.C 102(b) rejections of Weiss et al. of claims 1, 2 and 4 of 5/23/2006 have been withdrawn.

13. Applicant's arguments, see pages 16-17, lines 26-3, filed 7/21/2006, with respect to Bucher have been fully considered and are persuasive. The 35 U.S.C 102(b) rejections of Bucher of claims 1 and 5 of 5/23/2006 have been withdrawn.

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14. Applicant's arguments, see page 17, last paragraph and page 18, first full paragraph, filed 7/21/2006, with respect to Hajny et al. have been fully considered and are persuasive. The 35 U.S.C 103(a) rejections of Hajny et al. of claims 9-17, 33 and 34 of 5/23/2006 have been withdrawn.

15. Applicant's arguments filed 7/21/2006 have been fully considered but they are not persuasive.

Applicant's arguments on page 15, lines 15-17 are not persuasive. While it is true that Persons does not particularly mention that the biasing mechanism is structured to close the valve stem within a time period that causes water hammer in a fluid system, however, Persons's system has a valve connected to a valve stem, when valve stem (40) closes against the valve seat (6), the fluid in the fluid system will create a water hammer effect while the valve is closing due to the barrier in the flow path. Therefore, Persons's biasing mechanism has the same structure as claimed by the applicant. Persons does not particularly mention that the brake increases the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system, however, Persons's system has a brake that will "retard the speed of the device" (page 2, col. 1, lines 3-7) and this retarding of the speed of the device will increase the time period that the biasing mechanism closes the valve stem against a valve seat, with the increase in time period for closing the valve stem against the valve seat which would reduce the effect of the fluid in the fluid system contacting the valve stem thereby eliminating water hammer. Therefore, Persons's brake has the same structure as claimed by applicant.

Applicant's arguments on page 16, second full paragraph are not persuasive. While it is true that Min does not particularly mention that the biasing mechanism is structured to close the valve stem within a time period that causes water hammer in a fluid system, however, Min's system has a valve connected to a valve stem, when valve stem (32) closes a valve, the fluid in the fluid system will create a water hammer effect while the valve is closing due to the barrier in the flow path. Therefore, Min's biasing mechanism has the same structure as claimed by the applicant. Min does not particularly mention that the brake increases the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system, however, Min's system has a brake that will reduce the return speed of the biasing mechanism and this reducing of the speed of the device will increase the time period that the biasing mechanism closes the valve stem against a valve seat, with the increase in time period for closing the valve stem against the valve seat which would reduce the effect of the fluid in the fluid system contacting the valve stem thereby eliminating water hammer. Therefore, Min's brake has the same structure as claimed by applicant.

Applicant's arguments on page 18, last paragraph are not persuasive. In this case, Min clearly states that "the rotation speed of a motor is adjusted" (paragraph 0002) and "a deformation degree of the brake 51 can be adjusted depending on the rotation speed of the rotor 53" (paragraph 0063). Therefore, it would have been obvious to adjust the rotation speed of the motor to a desired rpm and a desired valve closing time.

Applicant's arguments on page 20, fourth full paragraph are not persuasive.

Regarding claim 26, Examiner only relied on Pasch et al.'s teaching of a thermostat control. Min lacks the use of a thermostat to control the opening and closing of the valve assembly. Pasch et al. disclose the same control as claimed. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a thermostat control to Min as taught by Pasch et al. in order to control a fluid flow in a temperature regulated system.

Applicant's arguments on page 23, first paragraph are not persuasive.

Schreiner, Jr. discloses the a valve actuator system having a motor (202) and a valve system (30), Schreiner, Jr. et al. further disclose a method for replacing the valve actuator system by removing either the entire actuator or removing a casing to obtain access to the motor. Min discloses utilizing a motor with a brake to slow the return speed of the valve system while the valve is transitioning to a closed position. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the motor of Schreiner, Jr. with the motor having a brake as taught by Min in order to slow the return speed of the valve system when the valve system is moving from an opened to closed position. The use of a brake with a motor in the system of Schreiner, Jr. would slow the return rate of the valve system and the valve system would not close under excessive force which would prevent the valve components from being damaged.

Conclusion

16. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew J. Rost whose telephone number is 571-272-2711. The examiner can normally be reached on 7:00 - 4:30 M-Th and 7:00 - 12:00 Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 571-272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Andrew J Rost
Examiner
Art Unit 3751



JUSTINE R. YU
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8/3/06